THE VETERINARY RECORD

A Weekly Journal for the Profession.

Edited by William Hunting, F.R.C.V.S.

No. 754. DECEMBER 20, 1902. Vol. XV.

Phisalix Vaccine Experiments.

On another page we print Mr. Sewell's note enclosing cheque for ten guineas. Mr. Gray offers a like sum, but "hedges" by the insertion of the curious proviso—"if Dr. Phisalix consents to come over and superintend the experiments." One is inclined to ask—If this vaccine will not work without the presence of Dr. Phisalix what is its probable value to our practitioners? The apparent imputation that British practitioners cannot be relied upon to carry out the experiments skilfully and honestly we feel sure is unintentional on the part of Mr. Gray.

We shall be pleased to hear from any gentlemen who are interested in the subject, and hope to put the matter on a working footing before many weeks are over.

Practice and Pathology.

In the course of the discussion on Hæmoglobinuria, which will be found on another page, it is remarked as a subject of regret that "little had been said as to the pathology of the disease." In our experience there are few—very few—practitioners who possess the three essentials—money, inclination, and capacity to carry out the long and careful work necessary for such an investigation. Such work should properly fall to our younger members who have had the advantages of a modern training, and, what is of even more value, can bring an enthusiasm to bear which, to say the least, is modified in the older men.

The practitioner who is dependent upon his daily work for his living, except he occupy an official post with clearly defined duties, is liable to calls at all hours and in various directions which, in the course of a year or two, unfits him for experimental work or long continued study.

In every profession there are found a few who are workers by nature, who take a keen interest and help to carry forward the boundaries of the science in which they are engaged, and it is to these few that we must look for the elucidation of such problems as the one in question. The practitioner is directly interested in the treatment of the disease, and he is doing now as they did 2000 years ago—experimenting, as witness in this discussion advocates of the use of stimulants and sedatives.

TARSAL NEURECTOMY.

An eight year old harness cob lame for two years from large bone spavin on off hind. The enlargement had been twice puncture fired, and blistered a number of times, but lameness remained and he was quite incapable of work.

Nov. 20th. — Cast and chloroformed cob and operated according to description given in "Clinical Veterinary Medicine and Surgery," Cadiot and Dollar. With the exception that on outside as well as removing portion of anterior tibial nerve a portion was excised of the musculo-cutaneous nerve, which lies immediately under fascia between extensor pedis and peroneous muscles, as it gives filaments to front of hock.

The wound on inside of leg, where great sciatic nerve was removed, healed by first intention, the outside wound healing by granulation, as the extensor pedis muscle moved up and down in wound to such a great extent on the slightest movement of leg. Immediately after operation there was a slight improvement in lameness at the walk, and today, 9th December, lameness has disappeared and hock is bent freely.

I hope to keep the cob under observation for trophic changes which may occur in the limb.

George Elmes.

St. Albans.

MULTIPLE EXOSTOSES.

Seeing the reports of Prof. J. McCall and Mr. J. Connochie of cases under the above heading, I send you details of a case I had which puzzled me at the time and which resembled cases reported in every detail.

The subject was a bay thoroughbred, aged 8 years, the property of a doctor.

In October, 1901, I was asked to see the horse as one of its legs had filled and its neck was lumpy. On examination I found the near fore leg swollen and very tense but no real lameness. There was also extensive urticaria on the neck and sides but the patches were much larger than usual. Laxatives and fomentations were advised. A few days later I saw the horse again and the swelling had increased up the inside of the leg, but the urticaria was better. Fomentations and alkalines were used. The swelling inside the leg was soon reduced, although considerable swelling round the metacarpal bone still remained. The horse was exercised.

I was sent for a few days later to see him as he had "thrown a splint." I found on the inside of the metacarpal bone a slight deposit throughout

nearly its whole length, and at the lower end a bony (?) enlargement or splint (?) about three to four inches long. The horse had wasted very considerably, but was well looked after and got ready for hunting, which he did, and occasionally saddle work.

In March, 1902, I was again asked to see him and found this time that his near hind leg was affected; the symptoms were the same as previous, but no urticaria. Under treatment the swellings were reduced, but a chain of splints (?) were found on the metatarsal bone. Since then these legs have frequently been attacked by swelling which soon subsides, leaving another splint (?).

After each attack it takes a long time to get any condition on the horse, and costs far more than the horse is worth, but being a favourite it is allowed every chance. At the present time the horse is working with both near fore and hind legs double their ordinary size, and the doctor told me a few days ago that he did a good gallop and pulled up sound and well.

I think this case very interesting as the symptoms are exactly like those recorded by Professor McCall, even down to the urticaria. There was no lameness, only stiffness at the joints, and no rise of temperature, and at the present time if the horse gets a swollen leg he is turned up until he goes better.

The owner has been trying Pot. iod. but tells me he has cleared his surgery out with no result, and I feel sure would be most grateful if any one could advise treatment which would remove these splints?

G. W. Chater, M.R.C.V.S.

Buntingford, Herts.

AN ERROR IN DIAGNOSIS.

By E. Wallis Hoare.

A large Irish terrier dog, about 6 years old, was sent to the infirmary for treatment with a history of obstinate intestinal obstruction for two days.

The animal was in very high condition, the abdomen was greatly distended and tender to the touch, and there was complete loss of appetite, while extreme dulness completed the clinical picture. A dose of calomel was prescribed and enemas administered with the long tube. Next morning the bowels had not acted, and the abdominal distension still continued, but no pain was present. Calomel was again given, also enemas. The animal died the same evening.

Autopsy. The pelvic cavity was filled by what at first sight appeared to be a large pear shaped tumour, but examination showed it to be the bladder, enormously distended with dark coloured urine; the mucous membrane of the organ was inflamed and of a dark colour. The prostate gland was enlarged but not to a great extent.

Remarks. Being very busy at the time prevented me from making a proper examination of the case, and omitting what should have be done, viz., a rectal examination.

This animal did not at any time make efforts to urinate, hence attention was not directed to the condition of the bladder. As to the cause of the condition, I can give no opinion.

The moral to be derived from the case is to make a complete examination in every instance where the symptoms do not point to a definite affection.

We learn from our errors in diagnosis perhaps as much, if not more, than where correct opinions had been given. An instance of this kind proves how correct was the aphorism of the late Sir Wm. Gull, viz., "We make more mistakes from not looking than from not knowing." This is specially applicable in veterinary practice.

IMPACTION OF THE RECTUM WITH BONY MATERIAL IN THE DOG.

By Henry Gray, M.R.C.V.S., Kensington, W.

Aged dogs, especially those affected with enlargement of the prostate gland and confined to the house, are frequently troubled with impaction of the rectum when too much bone has been ingested. They may be in this state for a few days, or even weeks, before any serious constitional symptoms are noticed, provided the softer portion of fæces are passed. But if strong aperients are administered or rough manipulations, such as using the spoon or too forcibly breaking down the mass with the finger, are performed the gritty or sharp bony material is likely to produce abrasions of the mucous membrane of the bowel and consequently enteritis. Such procedure may also allow an entrance for micro-organisms into the circulation, resulting in death from septicæmia. However, I have seen death take place from a suppurating prostate bursting into the peritoneal cavity in consequence of the bony mass in the rectum being constantly pressed on to the gland by the straining efforts of the animal.

When a case of repeated but ineffectual straining accompanied with a sharp cry at each effort, is observed in a dog, squatting as if to pass fæces, the rectum should always be examined with the oiled finger. If the symptoms are due to a bony impaction, a rounded mass or ball of hard gritty and friable material will be felt, which may be the size of a fowl's egg or even a cricket ball.

I have found that by the use of a metal syringe of from $\frac{1}{4}$ to $\frac{1}{2}$ pint capacity, having attached to it a long pipe of the calibre of a horse catheter and from 12 to 18 inches in length, having at its free end a bulbous point, *tepid* water repeatedly injected by some little force on the impacted material is effectual and sufficient, and a comparatively safe way to remove it. It is advisable to now and again inject a little salad oil containing a few drops of tr. opii. to the rectum, so as to soothe the irritation caused by the impacted mass grating against the mucous membrane of the bowel.

By adopting this old fashioned rational and comparatively safe method, which can be used by anybody having a little skill, one avoids a lot of vexatious

trouble and dirty work, as well as saves the risk of loss of reputation and loss of a patient. Forcibly breaking down the impaction with the finger or by means of instruments has frequently ended in death of the dog. Laparotomy and incision of the bowel to remove the obstruction is unnecessary and unjustifiable, and when performed is nearly always, if not always, followed by death of the patient. Even kneading the intestines, either with or without a general anæsthetic to reduce intra-abdominal pressure, so useful in soft impaction, is not advisable. Cold water is not recommended, as it is liable to bring about death from enteritis, gastritis or pneumonia. Beyond a dose of castor oil, aperients are dangerous. Hypodermic injections of eserine fail to bring about evacuation as they cause in this condition peristalsis of the bowel in a forward direction and vomiting

The after treatment consists in a milk dietary and an occasional enema of opiated oil for a few days.

Mr. Huish has made at my suggestion a white-metal syringe, a description of which I have given above. It will prove useful for many purposes, such as washing out the stomach of cat and dog, uterus of mare and cow, etc. The pipes may be used as rectal bougies or œsophageal sounds for cats and dogs. The above is a figure of the instrument.

ROYAL COUNTIES VETERINARY MEDICAL ASSOCIATION.

(Continued from p. 385)

Discussion on Mr. J. F. Simpson's Paper.

Mr. R. Porch was not going to say whether the term Azoturia or Hæmoglobinuria was correct, as so many able pathologists at the present day differed, nor would he attempt to give the meeting any pathological opinion, but simply practical observations on the disease as it had occurred in his experience. He was himself of opinion that the nervous system had more to do with that disease than was given credit for by many people; and the more he saw of the disease the more he was convinced that such was the case. As mentioned by Mr. Simpson, the cause was no doubt a brief rest which the animal had had, though he had known many cases where horses had been rested for weeks and then, with slight exercise, had developed the disease. He was inclined to think that horses which received a large proportion of maize in their food were rather more subject to the disease; and in that connection it had been his experience that since American horses had been imported very largely into this country there had been many cases of azoturia. Change of temperature had undoubtedly a very great influence in the production of the disease—either to extreme heat or extreme cold and, in his experience, especially a rapid change from cold to heat. As an illustration he might say that in the very hot week which followed their Maidenhead meeting he had six cases, but as the weather got cooler the number steadily dwindled. As to sex, probably 35 to 40 per cent. of his patients had been geldings, and the remaining 60 to 65 per cent. mares. He had had several cases that had apparently developed the disease without exercise, although they might have jumped about in the stall. As the essayist had remarked, the amount of exercise was apparently no criterion. He had known a horse do a journey of 16 or 17 miles apparently all right, and then go into the stable and be affected; while on the other hand a horse might develop the disease after moving 100 yards or less. Mr. Simpson had so ably described the symptoms that he had nothing to add. He was fully convinced that the fore limbs were often affected. For some time, holding—like most practitioners—the contrary opinion, when a horse went lame in front he tried to diagnose something else, and did not look for azoturia; but he had an animal affected in all four limbs at the same time, and had several cases affected in the fore-limbs which were undoubtedly cases of azoturia. He would like to mention a symptom of which Mr. Simpson did not speak, and which, unless they were suspecting azoturia, was likely to mislead. In most of his cases where the animals were affected in the front leg they did not give that diagnostic appearance of dropping: they would probably walk comparatively sound, but immediately they commenced to trot they "caught" the toe in the ground and pitched forward on the head as though they had lost nervous control of the limb affected. That was quite distinct from the dropping of the hind limb.

Turning to the prognosis, in his experience it was rather difficult to distinguish between a case that was going to get better and one that was not. He was quite of Mr. Simpson's opinion that the great thing was to stop the horse immediately they discovered the disease. The most difficult thing they had to deal with in cases of recovery was the atrophy of the muscles, which in many cases was very considerable. In his opinion the atrophy always occurred either in the gluteal or the vasti and rectus femoris, and the latter took longer to recover tone than the gluteal. Nothing in the way of medicine, in his opinion, would prevent that. He had tried strychnine, nux vomica, and indeed everything he could think of, without effect. It might be useful to try the galvanic battery to stimulate the muscle. As remarked by Mr. Simpson, in a bad case it became a question of whether the animal was worth keeping or not. In the company he was connected with, if a horse was going to live and was worth it, they let him live, turning him loose to run about in the shed; and he had known cases of recovery after two years, the animals then going to work and giving no trouble after. In his opinion horses that had been once the subject of azoturia were undoubtedly very prone to the disease again. With regard to slings he was quite of the same opinion as the essayist, thinking them worse than useless; indeed, they did considerable harm in many cases. He remembered a case where a mare lay for nine weeks on the ground with azoturia, being turned once a day, and she eventually recovered and returned to work. He quite agreed with Mr. Simpson on the general line of treatment. Some considerable time ago he adopted the practice of giving sedatives, and found nothing better than an ounce of bromide of potassium, repeated every two hours until there was recovery. He believed in a large dose—1 oz., or even 2 oz. As a purgative he had found ¾ lb. or 1 lb. of sulphate of magnesia had an excellent effect; it acted rather more quickly than aloes, and could be given in solution, and without nausea. He preferred as bedding for a horse in a box either peat moss or chopped straw, as it kept under

the animal better, and did not wind about the feet. He differed from the essayist as to hot fomentations. He had tried them, and also skins taken directly off sheep and put on the loins, but had come to the conclusion that they did no good, that they frequently made the horse restless, while the great thing was to keep it quiet Since he adopted the purgative and sedative treatment he had had a much larger percentage of recoveries. Frequently he found, after the first symptoms, a good deal of cardiac depression, and he had used in those cases tincture of strophanthi with good effect.

Mr. EAST, as the member who proposed the adjournment of the discussion, thanked Mr. James Simpson and Mr. Porch.

Prof. PRITCHARD, being called on for his views, said he had seen a great deal of what was called azoturia, and had come to the conclusion, in which he did not think he was singular, that he knew very little about it. With regard to slinging he was thoroughly of opinion, and it would take an immense amount of argument to convince him to the contrary, that the first thing to do was to get the animal in a horizontal position and not allow him to be on the floor. As to the designation of the disease, he considered hæmoglobinuria to be a term very much like "influenza" in that it was very useful. He thoroughly agreed with a strong dose of purgative medicine, but instead of treating the disease as one that required sedatives he took the opposite line and immediately after the use of the purgative went in for stimulants. He did that with a double object, thinking the purgative more likely to act if followed by a strong stimulant, and also to rouse up the nervous system. He gave a diffusable stimulant, not half a one, and repeated it, not only to deal with the muscular system, but also with the vessels, first through the cerebro-spinal system and then through the gangliæ. He could not conceive for what earthly reason sedatives were recommended. They could not have prostration of the body without a prostration of the nervous system. They did not know the cause, but they knew what part of the body was absolutely paralysed, and must be paralysed for want of nerve force; and his idea was to rouse the circulation, first with a purgative and in the next instance with a strong diffusible stimulant which should be repeated if necessary. His object in putting the animal in a horizontal position was to put the circulation in the best possible condition—in the position, in fact, which nature intended for the horse to carry on its circulatory functions, with the best success.

Mr. W. L. HARRISON said he had had very few cases, and he attributed this fact to care in diet and in regularity of exercise as a preventative.

Mr. G. E. KING said the paper was full of instruction. He thought whether a horse was to be slung or allowed to lie depended a great deal on the animal's temperament. Just as in cases of tetanus, some horses would rest quietly in their slings and then they were no doubt much better off, but a horse that resisted and kept on plunging and throwing himself in the slings he thought was much better on the ground. He generally gave sedatives, thinking, with Mr. Porch, that their main object should be to keep the animal quiet. In his experience hunters and brewer's horses were most subject to the disease, the former after a spell of frost and the latter after holidays, and highly nutritious leguminous food while idle seemed to be one of the causes.

Mr. J. P. S. WALKER said that to him azoturia had always seemed rather a nervous disorder than one of blood. He thought stimulants would be prejudical and thought the treatment suggested by Mr. Porch very reasonable.

Mr. BUTTERS did not think they need trouble much about the name of the disease. They were all agreed that it came on with a journey after rest in the stables on working rations. He agreed that animals receiving a liberal allowance of maize were more subject to the disease than others, and also half or three-quarter bred horses rather than heavier breeds, unless the latter had trotting work. He thought well digested statistics on these points would throw some light on the pathology of the disease. He fancied that not only the nervous but also the lymphatic system was involved, as shown by the atrophy of the muscles. As to treatment, he used, like others, to give a full dose of aloes, but now he found they did better without, and he gave a small dose of sulphate of magnesia and a dose of chloral hydrate, also applying hot fomentations covered with a macintosh or big rug. He fancied that blood letting might relieve the system.

Mr. LEPPER said he got very few severe cases in his district but several of what he might call sub acute cases —stiffness of gait and hardness of the muscles.

Mr. PERCY SIMPSON related his experience of the disease.

Mr. PORCH asked Mr. J. F. Simpson if he had noticed a peculiar smell about the urine in these cases?

Mr. J. F. SIMPSON replied on the discussion, thanking the members for being so lenient in their strictures and so liberal in their commendations on other parts of the paper. He was somewhat disappointed that so little had been said with regard to the pathology of the disease, and he did not hesitate to say that so long as they stuck to the word azoturia so long would they have a disinclination to approach the true pathology. It had been proved beyond all doubt that that was an absolutely misapplied and meaningless term as far as the disease under discussion was concerned. While undoubtedly the fore-limbs might become affected, 75 per cent or more were affected in the hind limbs and not in the fore, and in 90 per cent of hind limb affections both hind legs were affected. Mr. Porch's description of fore quarter affections and the symtoms exhibited was interesting and instructing. He agreed entirely that an animal once attacked by hæmoglobinuria was liable to subsequent attacks, and for that reason it was absolutely necessary to insist on careful diet and regular exercise as advocated by Mr. Harrison. As to the urine there was certainly a curious smell, indescribable, but specific to the disease. He had not observed that American horses were more frequently the subjects of the disease than others, but he remembered that many years ago when dearth of English cart-horses necessitated the importation of French mares that they were peculiarly liable to the affection. His failure to observe its frequency in American horses might probably be due to the fact that only a small percentage of animals from that country were worked in his locality. While expressing regret that the theories advanced by eminent pathologists and repeated by himself were not generally accepted by the meeting, he was glad to know that his description of some of the causes, the symptoms and general treatment were on the whole accepted as fairly correct. Symptoms must in all cases guide us as to the treatment to be pursued; thus, if the cardiac depression referred to by Mr. Porch is present by all means treat that symptom; if, again, the spasm of the affected muscles occasions intense sufferring then by all means adopt a treatment such as hot sweaters and sedatives both locally and systemically. Again, no hard and fast direction should be given with regard to slinging; in a mild case slinging will be not only justifiable but the result may be very beneficial; temperament of the subject must at all times guide us in determining whether slinging is advisable or the very reverse. Purgatives appear to be generally approved, though there is difference of opinion as to whether Mag. Sulph. is preferable to aloes. To the advocates of each he would say "Stick to the bridge which has always borne you with safety".

Mr. Simpson concluded by renewing his thanks for the kindly way in which his address had been criticised, and he thought he ought to offer an apology for introducing

an address which had provoked so long a discussion and which had prolonged the meeting well into evening.

The PRESIDENT said it gave him very much pleasure to ask them to accord to Mr. Simpson a hearty vote of thanks for his most excellent paper which had excited such vigorous discussion and interest. They had to congratulate themselves also on an important numerical addition to their membership, and altogether they might look forward to a bright future for the Association, and he hoped Mr. East would realize that during the year of his Presidency (Applause).

Mr. KING, in seconding, said Mr. James Simpson, who might be looked on almost as the father of the Association, put younger members to the blush. (Hear, hear).

The vote was carried by acclamation, and acknowledged, and the meeting closed with a hearty vote of thanks to the President on the call of Mr. BUTTERS, seconded by Mr. East.

THE NATIONAL VETERINARY BENEVOLENT AND MUTUAL DEFENCE SOCIETY.

The annual meeting was held at the Grand Hotel, Aytown Street, Manchester, on Thursday, December 4th. W. A. Taylor, Esq., vice-president, in the chair. Present: Messrs. T. Hopkin, Wm. Woods, A. Lawson, E. Faulkner, F. W. Somers, J. McKinna, R. C. Edwards, Harry Locke, A. W. Mason, E. S. Gubbin, J. E. Scriven, H. D. Chorlton, A. Munro, and the Secretary.

Minutes of last annual meeting were taken as read, and confirmed, the same having been printed and circulated.

Letters of apology for non-attendance were received from Messrs. J. Sutcliffe Hurndall, J. E. Kitchen, J. F. Simpson, H. J. Dawes, F. Hobday, W. Carless, Geo. Morgan, A. I. MacCullum, A. L. Butters, J. S. Carter, and Prof. W. O. Williams. A letter was also read from Mr. John Howard regretting his inability to attend owing to a severe indisposition, and making some remarks regarding the motions standing in his name.

The CHAIRMAN then read an address he had received from the President, Mr. Geo. Morgan.

"Gentlemen,—Since we last met another year has been added to the flight of time—a year full of very memorable events, such as the cessation of the war, the dangerous illness of the King, the successful operation and subsequent recovery to health, are matters of very great moment that are sure to claim the notice of future historians of the period through which we have just passed.

As far as the National Veterinary and Mutual Defence Society is concerned, we have done a good work in the relief of several deserving cases, and one important case has, I am glad to say, been successfully defended.

I should have liked to have witnessed the federation of the other Societies with this, which I feel certain would prove a great benefit to the whole of the veterinary profession.

I am now getting on in years, and feel that the time has arrived when I should separate myself from the Council, which I have served in one office or another for 37 years, and make room for a younger man.

I cannot, however, take leave of the Council without acknowledging and thanking them for the courtesy and kindness I have always received at their hands; and if at any time I have given offence to any of the members I am sure they will attribute it to extra zeal in the interests of the Society, and not to personal animosity, as such a thing I never for one moment entertained.

To the whole of the Council I shall ever entertain warm feelings of gratitude and pleasant memories of social intercourse in the transactions of the Society, and shall look forward to its future development at their hands with the deepest interest."

The HON. SEC.: I have pleasure in once more presenting the annual report of the proceedings of this Society During the year we have enrolled 21 new members. Two have been struck off in consequence of being £2 2s. in arrear, as per resolution passed at the last annual meeting, and one has died—we have at present 260 subscribing members.

Your Council have had several cases presented to them for assistance and advice. This has been freely given, but in two or three instances your Society could not legitimately support or defend, one case in particular in which a shoeing smith brought an action (claiming £75 damages) against a veterinary surgeon for injuries received whilst shoeing a horse. Your Council considered such to come under the "Employers Liability Act." The object of this Society extend only in cases of unjustifiable action on the part of the public against members. One case claiming damages nearly £50 it was decided to defend, and I am pleased to report a verdict was given in favour of the defendant with costs.

I have to report that Professor W. O. Williams of the New Veterinary College, Edinburgh, has placed at the disposal of the Society a "Free studentship" in memory of his late father. This was accepted with thanks, and already a nomination has been made, the recipient commencing his studies in October last.

The Council acknowledge with thanks a cheque for £2 3s. 7d. from the Provisional Committee (Edinburgh) National Veterinary Association. We have voted the following for Benevolent purpose: five sums of £5 and two of £10, besides certain sums voted 1901 paid monthly.

The TREASURER, in presenting his report and balance sheet congratulated the members on its sound financial condition—intimating that at the end of the year this account would be audited, and a copy of the balance sheet forwarded to each member, and suggested that a meeting of the trustees and Council be called at an early date in regard to investment of funds, etc. He also called the attention of the meeting to a number of arrears, and it was resolved that three gentlemen who were £2 2s. in arrear be again written to and asked for payment and if not paid before December 31st, 1902, they were to be crossed off the rolls.

The CHAIRMAN called the attention of the meeting to the proposed alteration of rules, and asked if any member wished to move the adoption of them, there being no response, the matter was left in abeyance.

ELECTION OF OFFICERS.

The following gentlemen were appointed officers for the year 1903:

President.—W. A Taylor, F.R.C.V.S., Manchester.
Vice-President.—W. Woods, F.R.C.V.S., Wigan.
Treasurer.—E. Faulkner, M.R.C.V.S., Manchester.
Secretary.—Sam. Locke, M.R.C.V.S., Manchester.
Council.—J. Abson, F.R.C.V.S., Sheffield; A. L. Butters, M.R.C.V.S., London; J. S. Carter, F.R.C.V.S., Bradford; T. Hopkin, F.R.C.V.S., Manchester; A. Lawson, M.R.C.V.S., Manchester; A. W. Mason, F.R.C.V.S., Leeds; R. S. Reynolds, M.R.C.V.S., Liverpool; J. E. Scriven, M.R.C.V.S., Tadcaster; W. Shipley, jun., F.R.C.V.S., Great Yarmouth; F. W. Somers, M.R.C.V.S., Leeds; R. C. Trigger, F.R.C.V.S., Newcastle-under Lyme; J. B. Wolstenholme, F.R.C.V.S., Manchester.
Auditors.—Messrs. Butcher, Ditton, Pownall, and J. B Wolstenholme.

A vote of thanks was passed to the retiring officers for their services during the past year, also a special vote to Mr. George Morgan, the retiring president, in which general regret was expressed at his desire and wish to retire from that position, and the Secretary was requested to write him to that effect.

SAM. LOCKE, *Hon. Sec.*

ON THE NATURAL HISTORY AND PATHOLOGY OF PNEUMONIA.

By the late J. W. WASHBOURN, C.M.G., M.D., F.R.C.P.

(Continued from p. 380.)

[ABSTRACT].

INHALATION OF FINE PARTICLES.

In ordinary respiration about 450 c.cm. of air are taken in and given out at each respiration . after a normal expiration succeeding a normal inspiration, 2,500 c.cm. stationary air remain in the lungs. Consequently only a small proportion of the total air in the lungs passes in from the atmosphere at each inspiration, and it is concluded that the tidal air does not reach the alveoli, fresh oxygen reaching the alveoli chiefly by diffusion. Some of the tidal air goes direct into the alveoli, for Zuntz and Loewy have shown that the capacity of the upper air spaces and the bronchial tree to the infundibula is only 140 c.cm., that is, about a third of the amount of the tidal air. During abnormal inspiration, as in coughing, still more of the tidal air passes directly into the alveoli.

The air we breathe contains many fine particles, both living, such as bacteria, and dead, such as soot particles, the majority of which are entangled in the mucus of the respiratory tract and are conveyed upwards by the ciliated epithelium. In the experiments conducted by Dr. Pembrey and myself we always found numerous particles entangled in the mucus from the nose right down to the smaller bronchi, chiefly, however, in the upper part of the respiratory tract. When the period of inhalation was very short, the mucous membrane of the turbinate bones appeared to act as a most effective filter. This filtering of the inspired air was noted by Tindall, who found that the latter part of the expired air was optically pure.

Haldane found that the air in a room contained fewer bacteria after it had been occupied by a number of individuals than before, the bacteria having been filtered off during the process of respiration. Straus counted the number of bacteria in inspired and expired air, and found that in one experiment the inspired air contained 20,700 bacteria in the cubic metre, while the expired air only contained 40. Some particles, however, from time to time reach the alveoli, and we shall have to consider what happens to them there, for this has an important bearing upon the question of infection through the lungs.

ABSORPTION OF FLUIDS.

Fluids when injected into the trachea are rapidly absorbed. Peiper found that 20 to 25 c.cm. of distilled water could be injected into the trachea of a rabbit without even causing dyspnœa. A dog received 250 c.cm. of water in one hour, in doses of 30 to 50 c.cm., without noticeable effect, while strychnine when injected into the trachea produced tetanic symptoms within 80 seconds. Sehrwald found that sticky fluids only reach as far as the bronchi and were more slowly absorbed.

ABSORPTION OF PARTICLES SUSPENDED IN FLUIDS.

Still more remarkable were the experiments of Nothnagel, who killed animals by cutting through the trachea and large vessels and allowed the blood to pass into the trachea. On examining the lungs he found that the alveoli were filled with blood which had also passed through the alveoli into the lymphatics in the interalveolar and interlobular connective tissue, even in the three and a half to five minutes that elapsed between the operation and the immersion of the lungs in alcohol.

Fleiner repeated and confirmed these experiments, and stated that absorption took place entirely through the alveoli, none occurring through the mucous membrane of the trachea or bronchi.

According to these experiments, it is the easiest matter for particles which reach the alveoli of the lung to pass into its parenchyma, and thence to pass into the bronchial glands, there being no defence against the invasion of the lungs when the particles have once reached the alveoli. Pembrey and I repeated these experiments in the following way, using rabbits in both sets of experiments. For the blood inhalation the trachea and large vessels were cut at the same time, and by a little manipulation the blood as it flowed from the vessels was aspirated by the inspiratory movements into the trachea and lungs. For the Indian ink inhalations the rabbit was anæsthetised, and a cannula placed in the trachea. The carotids were cut, care being taken that no blood should get into the trachea. At the same time an emulsion of Indian Ink was passed into the trachea. The loss of blood in each case caused deep inspiratory efforts, and the animal died in a minute or two. The lungs and bronchial glands were immediately removed, hardened in alcohol, and sections made.

In the case of blood inhalation we found that portions of the lung were solid, and of a bright red colour from the aspirated blood, contrasting with the pallor of the rest of the lung. The solid portions depended upon the position of the animal during the experiment ; when the animal was in the supine position the posterior border was chiefly affected ; when in the prone position the lungs were affected in patches, the posterior borders not being especially affected ; and when in a vertical position with the feet down the bases of the lungs were especially affected.

Microscopical examination showed that the alveoli were filled with blood, but it was difficult to say whether the blood had penetrated the alveolar walls for two reasons. First, it is not easy to say whether the blood in the walls of the alveoli is in the pulmonary capillaries or outside them. Secondly, in many cases the walls of the alveoli were so compressed by the blood in the alveoli as to render them very narrow. However, we believe that blood had penetrated into the walls. Sometimes we found blood in the periarterial lymphatics, but these were never so distended as to render the matter very obvious.

On examining the bronchial glands there was clearly blood in the lymph spaces, but on examining the bronchial glands of normal rabbits we found a similar condition, and we concluded that the bronchial glands of rabbits are mixed lymph and hæmolymph glands, such as have been described by Leydig, Gibber, Robertson, Clarkson, Vincent, Harrison, and Warthin, and we consequently believe that Nothnagel's experiments are not of the importance which they at first appeared to be.

In the Indian ink experiments it was seen microscopically that the particles had penetrated the walls of the alveoli, where they were found lying in the lymph spaces. Some were enclosed in large cells similar to the "dust cells" but the majority were free. There was no evidence of absorption through the bronchi. An interesting point in our experiments is the taking up of the particles by the cells in the few minutes which elapsed after the injection.

In the bronchial glands the Indian ink had penetrated, as was apparent on opening the chest. However, we found that the lining membrane of the pulmonary veins and the left auricle was stained with the dye, showing that a rupture of the vessels had occurred during the convulsions, which observation was also confirmed by a microscopical examination of the lung.

We will next consider what happens to the particles which have been inhaled.

INHALATION OF FINE PARTICLES.

A large number of experiments have been made as to

the fate of fine particles suspended in the inhaled air, Arnold perhaps being the investigator who has made the most extensive experiments. As a result of these experiments it has been definitely established that after prolonged inhalation of air heavily laden with fine particles the latter are found in the peribronchial and perivascular lymphatics, in the adenoid tissue of the lung in connection with these lymphatics, and in the bronchial glands.

The point most in dispute is the exact mode by which the particles enter. Another question of even more importance from the point of view of pathology is how far the mechanism of the lung facilitates or hinders the entrance of particles from the alveoli or tubes into the lung. The bulk of evidence is strongly in favour of the view that no absorption of particles takes place through the mucous membrane of the trachea or bronchi. On examining the mucous membrane very carefully Arnold found no particles in its walls except in cases of very prolonged inhalation, and they were then found, especially in parts where lymphoid tissue existed, and it is probable that the particles were being excreted into the bronchus and not in process of absorption.

Aufrecht opposes this view, pointing out that in all the experiments the size of the particles which are found in the tissue of the lung has not been noticed in explaining how these particles have gained entrance, and states that sometimes particles of dust are found in the tissue of the lung larger than the size of the alveoli. In an experiment of injecting Thoma's *Phosphatmehl* into the trachea of a rabbit the animal was killed four days after; large particles were found in the bronchial wall and in the peribronchial tissue. He considered that the particles had passed through the wall of the bronchi, because he found splitting of the muscular tissue.

All observers agree that the particles found in the lung after inhalation, whether in the lumen of the alveoli or in the lymph spaces and lymph vessels, are partly free and partly enclosed in cells, and there is a general agreement that at an early stage of inhalation the majority of the particles, whether in the lumen of the alveoli or in the lymphatic spaces and vessels, are free, while at a later period many of the particles are enclosed in cells—the so-called "dust-cells." We shall now have to consider the origin of the cells and their functions. In the lumen of the alveoli after inhalation most observers agree that two kinds of cells containing particles are found. The one is a small round cell with a round nucleus, which is sometimes tattered or in process of being "cut off," fragmented and with a small amount of granular protoplasm, and the other is a large cell with an oval vesicular nucleus and a finely granular protoplasm.

The walls of the alveoli are lined, as we have already stated, with two kinds of cells, the one being a large flattened cell, and the other a small cell with granular protoplasm. At first sight it would appear that these two kinds of "dust cells" represent shed alveolar cells, and this, indeed, is the view that has been taken by some. Others hold that the small cells are leucocytes, while Tchistovitch considers that both are derived from wandering cells, the smaller being microphages and the larger macrophages.

Slaviansky, by injecting different coloured particles into the trachea and veins, found both in the cells in the lumen of the alveoli. Tchistovitch, by injecting carmine into the veins, found twenty-four hours later leucocytes and large epithelioid cells containing carmine in the alveoli. Aufrecht states that the "dust cells" are always derived from alveolar epithelium, and that in no case has he seen particles of dust in white blood corpuscles.

Whatever be the source of these cells, one of their functions is to pick up fine particles from the alveoli and to carry them along the bronchi and trachea, to be expelled with the sputum. All observers have noted the presence of cells containing particles in the mucus of the trachea and bronchi after inhalation.

The cells also take up particles after they have penetrated into the tissue of the lung. In the peribronchial and perivascular lymphatics, according to Arnold, the particles are chiefly free, while in the peribronchial and perivascular lymphoid nodules they are all enclosed in cells.

Tchistovitch has developed the theory of phagocytes to the absorption of particles by the cells. In his experiments he used newly-born guinea pigs, to avoid confusion with soot particles which may have been derived from soot accidentally inhaled previous to the experiment. He exposed the animals to inhalation of soot for a couple of hours, and killed them either immediately afterwards or at varying periods later. He states that the soot was first found lining the walls of the alveoli, but that there was never any evidence of absorption by the alveolar walls. Indeed, he states that the alveolar cells in the newly-born guinea pig are non-nucleated, and that the nuclei which are visible on the alveolar wall belong to the endothelium of blood vessels and to the cells of the connective tissue. He says that the small nucleated cells in the alveolar walls are practically absent. The particles, however, are taken up after a few hours, both in the alveoli and in the lymph spaces, by phagocytes. In opposition to Arnold, he states that the first cells to take up particles are lymphocytes, small macrophages, and polynuclear cells, and that at a later period come the epithelioid macrophages, which resemble alveolar epithelium, but which are derived from the endothelium of the blood vessels and lymphatics. He says that in the blood vessels there were also a large number of similar polynuclear leucocytes, lymphocytes, and macrophages.

Passage from Lung to Pleura.

The older observers noted from time to time the presence of inhaled particles in the parietal pleura. Von Knauff, for instance, refers to the presence of particles in the adenoid tissue of the pleura mediastinalis. The lymphatics of the pulmonary pleura, too, are filled with particles after prolonged inhalation, these particles being derived from the superficial alveoli. Grawitz, by blowing fine particles of dust, etc., into the trachea of rabbits, found isolated particles in the costal pleura after twenty-four hours. Aufrecht repeated this experiment, using an emulsion of cinnabar. Fleiner injected Indian ink into the pleural cavity, and found (after an interval of from five to forty-five minutes), that the corpuscles were taken up by the pleura costalis and the pleura mediastinalis, but not by the pleura pulmonalis. The absorption is dependent upon the normal respiratory movements, for by producing a pneumothorax absorption is prevented. The particles then pass partly into the lymph glands at the back of the chest (intercostal glands), and partly into the glands along the internal mammary artery, behind the manubrium sterni, and in front of the trachea. The supraclavicular glands are also found filled with Indian ink.

In the pleura there appears to be a natural passage of lymph from the cavity to the parietal pleura, and any particles which should pass through the pulmonary pleura into the cavity are absorbed by the parietal pleura and taken to the glands. There would also appear to be a passage, though not an easy one, from the superficial alveoli of the lung to the pleural cavity through the lymphatics of the pulmonary pleura.

Pembrey and I have made a number of experiments in this connection, using soot, cinnabar, and emery powder, and experimenting upon 14 rabbits. The experimental animal was placed in an airtight chamber, to which was connected a special arrangement for the delivery of soot particles. By a slight modification of the apparatus we were able to use heavy particles, such as cinnabar and

emery. The inhalation lasted three-quarters of an hour, and the animal was killed at varying periods. Some were killed by a blow at the back of the head immediately after the experiment, others twelve hours later, and others at the end of a week. The trachea was immediately ligatured, the thorax opened, a cannula was passed into the pulmonary artery, the blood washed out with a saline solution at a temperature of 37° to 38°, and a picro-sublimate solution was then injected. The object of this procedure was to fix the alveoli in a condition of distension without disturbing their contents The lungs and heart were then placed in picro-sublimate solution and hardened in the usual way.

In all cases the air which was breathed by the animals was heavily laden with particles, and the animals on removal from the chamber were completely black, red, or brown, according to the nature of the inhalation, and in all the animals which were killed at an early period the respiratory tract from the nose downwards was lined with particles.

With regard to the soot inhalations, we found by making control observations that great care had to be exercised in drawing conclusions, inasmuch as the ordinary laboratory rabbits frequently had a large number of cells filled with soot in their lungs. In the conclusions which we have drawn we have made every allowance for this fact. We have, moreover, made control experiments upon newly-born guinea pigs.

The two chief lines of defence against the entrance of particles into the lungs are the nose and larynx; the mucus over the turbinate bones retains an enormous amount of dust; animals upon which tracheotomy has been performed are therefore in an unfavourable condition, and exact conclusions cannot be drawn from experiments made upon them. Violent respiratory movements facilitate the entrance of particles into the lungs, and easily lead to rupture of minute blood vessels in the lungs. Small areas of collapse are frequently seen in the lungs of animals which have inhaled soot or dust. Particles getting into the alveoli are then got rid of in the following manner:

Some pass through into the lymphatics, and either reach the bronchial glands, where they are retained, or are retained in the adenoid tissues (peribronchial and perivascular), and thence may be excreted to the bronchi by means of cells; whilst some are taken up by cells and thus passed into the bronchi, and are ultimately extruded through the upper air passages.—*B.M.J.*

LIABILITIES OF AGISTORS.

Milton *v.* Pronk.

This was an action by jobmasters to recover £86 for the hire and livery of horses. The defendant admitted the amount of the claim, but counterclaimed for damages for injuries to a mare, which he had put out to graze with the plaintiffs.

Mr. Horace Avory, K.C., Mr. George Wallace, and Mr. Lacy Smith appeared for the plaintiffs; Mr. Bray, K.C., and Mr. James Gray for the defendant.

Mr. Bray, in opening the defendant's case on the counter-claim, said there had been dealings for some time between the plaintiffs, who were horse dealers and jobbers, and the defendant. In July, 1899, an arrangement was made that defendant's mare should be taken in by the plaintiffs at 7s. 6d. a week on a farm at Hendon. On July 8th Mrs. Pronk went down to see the mare, and found her all right. Three weeks after the plaintiffs told Mrs. Pronk that the mare had been injured. The mare was a mere skeleton, and scratched and torn in the hind legs. Mrs. Pronk was told that the mare had got her leg through a hedge. She saw a quantity of loose barbed wire in the field and a broken plough share. Eventually the plaintiffs sent the mare back to the defendant. Mr. Gray, a veterinary surgeon, examined the mare and found her permanently injured. The defendant wrote to the plaintiffs complaining, and they replied that the mare was taken in at the owner's risk. The law was that the agistor of a horse had to take reasonable care of the horse. The plaintiffs set up a custom that an agistor was not liable.

Mr. Avory said they did not undertake to do more than take reasonable care that the field was a proper one for a horse to be turned into; and that she would not get out into another field. They took no responsibility for an injury that a horse did to itself.

Mr. Bray, continuing his opening, said there was no bargain that the plaintiffs would not be responsible. It was said the animal was injured by its inherent vice. The plaintiffs removed the mare into a field with other mares at a time she was in season. As to damages. This was a pet mare, but he did not claim damages in respect of that. At four she cost £65, and was at the time of the accident 11 years old, and should be worth £75. Now she was only worth £15.

The defendant and his wife gave evidence that they saw a lot of wire about in the field and barbed wire in the fences.

H. Gray, veterinary surgeon, called, said the injuries were caused by barbed wire. He thought it negligent to turn town horses out into a field with barbed wire fencing.

Professor W. Pritchard said he thoroughly disproved of barbed wire. He had seen terrible accidents to horses turned out into fields fenced with barbed wire.

Cross-examined: He suggested that barbed wire fencing for horses was improper under any circumstances.

W. Hunting said he thought barbed wire was not a proper thing to have in a field where horses were grazing.

Mr. Avory, in addressing the jury for the plaintiff, said if the jury came to the conclusion that the mare was injured by attempting to jump the fence in which there was barbed wire, then a question of great importance to the farming interest of this country arose—namely, whether the presence of barbed wire in a fence was negligence in the person who used it. It was universally used on farms where cattle and horses were put out to graze, and therefore he contended that owners of horses put out to graze took the risk of injury from barbed wire in the fences. He submitted that the field was reasonably fit for the purpose, and that there was no negligence.

Mr. W. Milton, one of the plaintiffs, said he was a jobmaster carrying on business in Park Lane. He owned and leased farms at Hendon for the purpose of his business. There was barbed wire on the off-side of the fence belonging to the adjoining occupier. There was no barbed wire in the field. He had grazed 1,200 to 1,500 horses on the Grove Farm during the last 12 years, and had never had an accident like this before. Barbed wire fencing was extensively used round there. By custom, the agistor took no risks, except from straying.

Cross-examined: He filled up gaps with a single strand of barbed wire.

Frederick White, foreman in employ of the plaintiffs at Hendon, said there was no barbed wire about the fields, only in the boundary fence.

H. W. Caton, examined, said he was a veterinary surgeon. Nine-tenths of the farms where horses were turned out to graze used barbed wire. He was veterinary surgeon to an insurance society, which made no extra charge when barbed wire was used. He thought the fences in question fair. In his experience owners of horses taken in to graze always took the risk of horses injuring themselves by jumping the fences.

A. H. Jacobs, veterinary surgeon, examined, said he had a horse turned out at Grove Farm. The fences were

in a proper condition. Barbed wire in the fences was not unreasonable.

William Yells, a grazier and farmer at Hendon said he took horses into graze. He took no risks.

John Wallace, farmer at Hendon, said he had taken horses in to graze. They came at the owner's risk.

Mr. Justice Ridley, in summing up, said the question was whether the plaintiffs took reasonable care of the mare. He thought the law was that, if a man took a horse out to grass, he was bound to take reasonable care; and there was no custom of the country against that. He was bound both as regards the field and the fence to take reasonable care. If he had provided a proper fence, then the agistor would not be liable if the horse was injured by trying to jump it. It was suggested that if the animal was injured by barbed wire in the fence, that was want of care on the part of the agistor. It was said, on the other hand, that barbed wire was a proper thing in a fence where horses were to be grazed. How were they fenced in before? This barbed wire was a new thing, and he did not see why it was necessary. What did they think of such a fence for a horse sent down from London, a horse that had never seen barbed wire before? His Lordship then left the following questions to the jury:—(1) Was the accident caused by the mare trying to jump the fence? (2) Was she torn by the barbed wire in the fence? (3) How was the accident caused? (4) Did the plaintiffs use reasonable care as to the field and the fence, and as to putting her in the other field?

The jury said they were of opinion that the injuries were caused by barbed wire lying loose on the ground, and they also found that the plaintiffs did not use ordinary care as to the fence and the field, as barbed wire was not suitable and was dangerous to horses. They assessed the damages at £45.

Judgment for the defendant for that amount on the counter-claim.—*The Times.*

A SHEEP WORRYING CASE.

The Bebside Coal Company sued the Choppington Co-operative Society for the sum of £20, the value of 14 lambs, which were worried or otherwise destroyed by defendants' dog. Mr. H. T. Rutherford, solicitor, appeared for the Coal Company, and Mr. Meynell barrister (instructed by Mr. C. Percy, solicitor, Alnwick), appeared for defendant.

Mr. Rutherford, in opening the case, said a remarkable point in the case was that, two hours after the alleged worrying of the sheep, when they went to the Store, they were told that the dog was buried, and that the dog was taken up, and blood was found upon its paws. Its stomach was afterwards taken out, and lambs' wool was found in the stomach of the dog. He could prove that the sheep were worried on the 28th, and it was between 5.10 and 7 a.m. the next day. He pointed out that when a retriever dog once worried sheep it never stopped, and he submitted that the reason why defendants had put the dog down was because it had worried their sheep.

James Irwin stated that he was farm steward at Choppington Farm. On October 28th he went to a field on the farm about 5.30 p.m. He had in three fields there a flock of sheep, which could go from one field to another. They had 90 lambs When he got to the field marked 25 on the plan, near to the Rector's carriage drive, he saw a large black retriever dog, which he recognised as belonging to the Co-operative Society, chasing the lambs towards him. The dog turned one lamb up. He threw his stick at the dog and missed him, but managed to hit him with a stone, and the dog then ran away. On the 29th the fencing was in perfect order. The next day, on making his usual rounds about 7 a.m. he visited No. 19 field. He found 14 lambs lying all dead in the corner, and the fencing was broken down. The rest of the flock were in the middle of the field, and they were afraid of his dog. Of the lambs lying dead, eight had wounds, the flesh being bare and exposed. There was one with the nostrils torn off, one with an udder torn off, and another with the entrails completely eaten out. All of the sheep were more or less injured. He was sure the sheep had been worried. He believed that the whole of the sheep had been run into the corner, and some of them he thought had been suffocated. Some of the sheep were warm when he found them. About 10.15 that morning he heard that the Store dog had been shot and buried. Accompanied by Mr. Hornsby himself, and another man went to Mr. Tait, who said he did not think it was their dog which had done the worrying. Mr. Hornsby asked to be shown the dog's grave, and a man named Taylor was sent with them, and they dug the dog up. He had no doubt about that being the dog he had seen that morning. The dog's paws were covered with blood. The dog had been shot in the neck. The blood on the paws was not likely to come from the neck, as there was no blood on the upper part of the paws.

Cross-examined by Mr. Meynell, witness said he could not swear to a quarter of an hour as to the time of his finding the dog in the field. He could only say between 5.30 and 6 p.m. He had been informed by a boy named Prior that the Store dog was amongst the sheep. He was not out more than 10 or 11 minutes. He did not go through the fields any more that evening. When he first saw the dog it was not more than 25 yards from him. Sunset was at 4.43 p.m. There was no moon, but it was rather light. He could see 200 yards away. It was not dark nor misty. The fence in the corner spoken of was entirely of hawthorn. It was the fence of growing thorn which was broken down. A photograph produced was declared to be "nothing like the place." The photogragh was too small.—His Honour: It is a very pretty photograph, Irwin, have another look at it.—Witness adjusted his glasses, and had another scrutiny.—Answering to further questions, witness said the sheep were lying within a square of six or seven yards. He gave information to the police on the subject, but the policeman did not make such a careful examination. The sheep did not smell. In cases of mortification sheep would stink in five or six hours. They were sent away the next day at noon. Witness did not send the sheep to be skinned. Witness could not say that the sheep were putrid. It was not customary to send sheep to a tanyard. He last saw the dead sheep on the 30th.—Mr. Meynell: Were they swollen then?—Witness: They were swollen when I first found them.—Continuing, witness denied that P.C. Marshall ever stated that the sheep were not worried. P.C. Marshall never expressed such an opinion to him, nor P.C. Stuart either. They had had no deaths before or since in that particular flock. They had a gimmer died a few days after, but it belonged to another flock. The reason why he had removed the sheep from the field where he found the dead ones was because the pastures were bare, and the fence was broken. The sheep were not frothing at the mouth. The hole in the sheep spoken of was about a foot in length.—Mr. Meynell: Then a policeman would see that?—Witness: Well, any half blind man could see that.—Asked if there was any single mark of a bite on the sheep, he said there were several. The blood on the dog's paw was not a mere speck. It had blood on the roots of its tusks.—In reply to His Honour, witness said the sheep were not suffering from black water or black quarter.—Mr. Rutherford suggested that when sheep had the disease in question, the affected animals would have separated themselves from the flock.—Witness said that was so.

George Hopper, gamekeeper, said he had had occasion to complain about the dog ranging the fields, and the committee had promised to have it fastened up. On Wednesday, the 28th of October, he went to the field

marked No. 19 on the ordnance plan, and saw some dead lambs lying. He examined them and found wounds upon them which seemed to have been caused by a dog. The fence was down in a corner of the field. He afterwards went to Choppington Co-operative Store and asked the manager if he would let him see the dog. The manager sent a man named John Taylor to show him where the dog was buried. He opened the grave and took out the dog's body and ripped it open, and took out its stomach. He opened the stomach, and found a substance resembling wool. He handed the stomach over to Mr. McGregor, veterinary surgeon.

Henry Neale, screener, Choppington, said on Tuesday night, October 28th, about 10 minutes past 5 o'clock, he was coming home from his work, when he saw a black retriever dog belonging to the Choppington Store ranging a field near the railway. He heard someone call the dog "Gip."

John Croft said he was a caller at Choppington High Pit. On Tuesday night, October 28th, he went to his cabin at the High Pit about half-past 5 o'clock. He saw the dog belonging to the Store on the pit heap. The dog remained in his cabin until next morning, the dog at intervals going with him to call on the deputies and other workmen. At 5 o'clock next morning the dog went out with him, and left to go into Mr. Lowes's field. He did not see it any more after 10 minuter past 5 o'clock on the morning of October 29th.

Robert Lowes, farmer, Choppington, said he knew the dog belonging to the store. He had never seen this dog running his sheep. He had a sheep worried in September last, and suspected the Store dog, as he had seen it in his field the night before. He saw the Store secretary about it, and on the Sunday the Secretary and one of the committee (Mr. McHugh) came to his farm and told him a meeting was going to be held on the Monday night. He saw the Store Secretary after that, and was told that the Secretary and himself had to settle the matter. He did not get the matter settled satisfactorily.

Sergt. McKenzie said he was an inspector under the Contagious Diseases (Animals) Act. On October 30th, a cart load of lambs were brought to the Police Station at Bedlington for him to examine, as it was stated they had died from a disease. He told the lad to take them to a slaughter house, and he would see them. He went to the slaughter-house and saw the sheep, and examined three, and found them torn about the shoulder and udder. He was of opinion that the sheep had been worried and had not died of infectious disease.

Daniel McGregor, V.S., Bedlington, said he had examined the sheep, and saw that three of them had been very badly mangled. One was torn about the shoulder, another was torn at its stomach and leg, and a third was torn at the udder. He put it down at once that the sheep had been worried. The other sheep had died from suffocation. If a whole flock of sheep were huddled into a corner by being chased by a dog, it was quite possible for some to be suffocated. He also saw dog bites upon some of the live sheep in Mr. Lowes field.

Mr. Hornsby, manager of Choppington Colliery, produced a survey of the place, and said the distance from the pit heap to where the sheep were worried would be about 1,020 yards.

Cross-examined by Mr. Meynell, Mr. McGregor, V.S., stated that he did not know of a disease called blackwater. There was a disease called black-quarter, but he had never known it in sheep, only in cattle. They had a disease analagous called braxy, but he had not known a case in this country in all his 41 years' experience. Braxy was known in the Highlands of Scotland. Mr. Meynell: Then if this was a case of braxy it would be the first case in this country? Witness: The first case that I have known of. His Honour: Is it an infectious disease? Witness: Yes. His Honour: If you found 14 sheep which had died of that disease, would you have expected to find some the next day? Mr. Meynell asked if witness knew of Professor McFadyean, or did he recognise him as an authority. Witness replied that he did know the gentleman, and did recognise him as an authority, yet he would not even take his statement that the sheep had died from disease. His honour said he would like to know how the Professor came by his opinions regarding the case. Mr. Meynell: I will be very pleased to show your Honour. I have his letters, that is, if my friend Mr. Rutherford will allow. Mr. Rutherford: No, certainly not. Mr. Meynell: Do the animals froth at the mouth in the case of this disease? Witness: Yes. Mr. Meynell: Is it a fact that exceedingly rapid decomposition sets in? Witness: Yes. Mr. Meynell: If it is swollen and stinking within five or six hours does it not indicate disease? Witness: It would be rather peculiar, but I do not think that it was the case His Honour: What is the chief disease that sheep die from here? Witness: Dropsy. His Honour: Did you inspect these sheep? Witness: I did not make a post-mortem examination, but saw the sheep after Mr. Isherwood had made a post-mortem examination. Mr. Meynell: How long would it take a dog to worry the sheep Witness: I don't know. Mr. Meynell: Would it take an hour? Witness: About that I should say. Mr. Meynell: Did any of the other sheep suffer from congestion? The sheep showed signs of being exerted. By Mr. Rutherford: The sheep would decompose quickly through being chased as would any animal. A hare which had been chased would decompose in 24 hours.

Mr. Meynell having addressed the Court, and reviewed the evidence which he was about to call, Wm. Thirlwell, secretary of the Choppington Co-operative Society, said on the 27th of October he attended a committee meeting of the Society, when the dog was ordered to be destroyed owing to a complaint from Mr. Darling to the effect that the dog had been seen eating a dead sheep. The dog was given to Mr. Dickenson, a greengrocer, to destroy the dog. A minute to destroy the dog was put into the minute book.

Cross-examined by Mr. Rutherford, witness said that the only reason why the committee had had a minute entered in the book to have the dog destroyed was on account of the complaint from Mr. Darling. Mr. Rutherford: Were you in Court when Mr. Lowes gave evidence? Witness: Yes. Mr. Rutherford: Then you heard him say that you had instructions to settle with Mr. Lowes, that it was left to him to settle? Witness replied that he had not said such a thing. He had no power to settle. Mr. Rutherford: Was Mr. Lowes' claim admitted? Witness: No. Mr. Rutherford: Is it not a fact that you got instructions in October to put the dog down? Witness: Yes. Mr. Rutherford: Had you specific instructions to destroy the dog? Witness: Yes. Mr. Rutherford: Then why did you not do it? Witness: Because we made inquiries and found that there was another dog connected with Mr. Lowes' case. His Honour: Why was the dog not destroyed? Witness: It was left with the Chairman and I to make inquiries. Mr. Rutherford: Why did you not enter that in your minutes? Witness: Because there was no resolution passed. Mr. Rutherford: Did your committee meet on October 27th and decide that the dog should be destroyed? Witness: Yes. Mr. Rutherford: Why was that? Witness: On account of Mr. Darling's complaint. Mr. Rutherford: Did Hopper complain about the dog chasing sheep? Witness: No; he complained, but not about sheep. Mr. Rutherford pressed it that Hopper had complained. His Honour stated that he had asked Hopper as to the breeding season. Mr. Rutherford: Had you a complaint from P C.'s Marshall and Stuart? Witness: Yes, that was on the 27th.

Geo. Tait, manager of Choppington Store, said he knew the dog well, which was in the habit of going with him. He never saw the dog running sheep, or take any

notice of them. The dog was an extremely quiet one. On the 27th of October he heard a complaint that the dog had been seen eating a dead sheep belonging to Mr. Darling, and, in consequence, the committee ordered the dog to be destroyed. P.C. Stuart came to him on the 29th of October and asked him if he could give any account of where the dog had been the night previous, and he said he could not. Cross-examined by Mr. Rutherford: He had heard that sheep had been worried belonging to Mr. Lowes. The first complaint he had about the dog was from Mr. Darling on October 27th. Mr. Lowes claim was considered by the committee, and the secretary was instructed to see Mr. Lowes and make inquiries.

John McMullen, miner, Choppington, said he saw the dog on the railway between the Old Pit and the High Pit on the night of October 28th, about 25 minutes past 6 o'clock. The dog followed him until he reached the screener's cabin.

Joseph Dickenson said he was a greengrocer to the Choppington Co-operative Society, and on October 28th he was told to destroy the dog. He tied it to his cart, and was going to take it to a relation to get it shot, but it got away from the cart near Bedlington Station, and he never saw it again until 7 o'clock next morning. He locked it in the stable, and afterwards shot him, and, with the assistance of John Taylor, the dog was buried. There was some blood near the wound on the breast. There was no other blood or wool on the dog.—By Mr. Rutherford: Witness was very certain as to his time. He was going to drive to Stakeford if the dog had not escaped. He knew it was 7 o'clock, because he heard the buzzer. The dog could not have run down in less than a quarter of an hour. The dog might have been there at a quarter to 7, and in the Store at a quarter past 7.

Joseph Maughan, joiner, Choppington High Pit, stated that about 6.10 or 6.15 a.m. on October 28th he saw the Store dog in the cabin. He did not see any dirt or blood about him.—By Mr. Rutherford: He did not pay much attention to the animal.—By Mr. Meynell: If the dog had been saturated with blood half way up the paws would you have seen it?—Witness: Yes.—Mr. Rutherford protested that saturated was not a proper description.—Mr. Meynell reminded Mr. Rutherford that "saturated" was the statement of the witness Irwin.

John Taylor, cartman, said he was there when the dog was shot. He was then quite clean, and there was no blood about him. Witness took the dog about a mile to bury him. There was a little blood flowing from the wound. He was also there when the dog was dug up. They put the dog head first in the grave. There was blood in the grave where the dog had been lying. He was there the second time the dog was dug up. Hopper took the stomach out. There was no meat in the stomach. Irwin took from the stomach a small string-like substance, and said it was wool. Witness said he did not believe it.

Cross-examined by Mr. Rutherford, witness said that he was sure it was not wool which was taken from the stomach. He did not see any blood on the paws.—His Honour: Even if he did, that is not where blood was likely to be found if he had been worrying sheep.

P.C. Stuart stated that he was sent for by Mr. Irwin on October 29th, after 10 a.m., and he went to see Mr. Tait to see if he could give an account of the movements of the dog. Mr. Tait said he could not say, as the dog had been out all night. Witness suggested having the dog dug up, and Mr. Tait readily consented. When they dug up the dog it was very clean. There was a little blood on the paws. They looked in the dog's mouth, but there was no sign of blood or wool. The dog's mouth was quite clean. The appearance of the dog was not as if it had been worrying sheep.—By Mr. Rutherford: He saw the stomach taken from the dog. Hopper said there was some wool, but he thought it was fluid.—By Mr. Meynell: It would be proper to say that the dog's paws were saturated with blood.

P.C. Marshall stated that he saw the dog after it was dug up. The dog was quite clean. There were no signs of it having been worrying sheep. He went through the stomach, but found no wool. There were 12 sheep worried about 1½ miles from the scene in question. That was on the farm of Mr. Swann.

Mr. McGregor, recalled, said he examined the dog's stomach, and found wool distinctly. It was difficult to find. Hopper handed him the stomach for examination. He got dozens of hairs.—By Mr. Meynell: He did not examine them microscopically. He took the hairs one by one. There was nothing but mucus and a few hairs. —By His Honour: The wool might have been there for some days.—His Honour pointed out that the dog was killed within two hours after the sheep were worried. Would he expect to have found some food in the stomach if it had eaten a portion of a sheep?—Witness: I did not say that.

His Honour, in giving judgment, remarked that the first question was the guilt of that particular dog accused. The evidence on behalf of the complainant was that on the night of the 27th, the dog in question had been seen amongst his sheep, some of which had been found worried. There was also evidence that it was seen shortly before by a miner going home from his work. Against that they had the direct evidence that the dog had been seen in the screeners' cabin at a time which rendered it impossible for the dog to have been at the field in question. It was for complainant to make out his case, and he could not succeed. There had not been any wool found in the teeth of the dog. There had been some hair found in the stomach of the dog, but there was no blood about its mouth, although it was shot within two hours of the sheep being killed.—Mr. Rutherford: But I would remind your Honour that Hopper's evidence was that there was a speck of blood found in the dog's mouth.—His Honour: That I disregard altogether.—His Honour, continuing, said if the blood on the dog's paws had been caused by sheep worrying, there would have been blood found upon the mouth of the dog. That was the whole evidence. Because the dog had been shot and buried that day the plaintiff's witnesses jumped to the conclusion that the dog had been destroyed because it had worried their sheep, and hence there was an action to force out of them damages. The case entirely failed with regard to the criminality of the dog, and judgment was for defendants. There was just another remark he would like to make, and that was in regard to the statement of the policeman Stuart, who had stated that the Rabies Act was in operation in Northumberland. He thought it was high time it was in order that stray dogs could be taken by the police and put down.—*The Morpeth Herald.*

Personal.

Mr. J. Alexander Todd, M.R.C.V.S., of Worthing, whose appointment as veterinary officer to the Sussex Imperial Yeomanry has just been notified, has seen some ten years' service with that particular branch of the military forces of the country. Joining the Queen's Own Royal Glasgow Yeomanry Cavalry in 1882 he served seven years as a trooper, and since March, 1899, he has held a commission as Vet.-Lieutenant in the Hampshire Carabiniers, from which regiment he has now been transferred.—*Sussex Daily News.*

Davies.—On the 13th December, at Sunnybank, Heathfield, Swansea, the wife of D. Gladstone Davies, M.R.C.V.S., of a daughter.

ARMY VETERINARY DEPARTMENT.

Extract from *London Gazette*:

WAR OFFICE, PALL MALL, Dec. 5.

SUSSEX I.Y.—Vet.-Lieut. J. A. Todd from the Hampshire (Carabiniers) Imperial Yeomanry to be Vet.-Lieut.

Dec. 16th.

Vet.-Col. F. Duck, C.B., on completion of tenure of appointment as Director-General, is placed on retired pay.

Vet.-Lieut. W. B. Edwards to be Vet.-Captain.

OBITUARY.

ERNEST EDWIN BATT, M.R.C.V.S., 469 Oxford St., W.
Graduated, Lond., July, 1879.

On Dec. 18th, at the residence of his sister, Coombe Wood, Winscombe, Somerset, E. E. Batt, second son of the late H. T. Batt, F.R.C.V.S., aged 44.

JAMES WILLIAM FLANAGAN, M.R.C.V.S.,
Board of Agriculture.
Graduated, Lond., December, 1900.

On Saturday, December 13th, at 120 Belgrave Road, London, S.W., after intense suffering, bravely borne.

GEORGE HENRY RAINFORTH, M.R.C.V.S.
Graduated, Lond., July, 1902.

Mr. Rainforth died on the 16th inst., after a few days illness, at South Park, Lincoln, aged 24 years.

CORRESPONDENCE.

PHISALIX ANTI-DISTEMPER VACCINE EXPERIMENTS.

To the Editor, *Veterinary Record*,

Sir,—I beg to enclose my cheque for ten guineas as a subscription to the fund which you are collecting for defraying the expenses for investigating Dr. Phisalix' Anti-Distemper Vaccine.—Yours faithfully,

A. J. SEWELL.

55 Elizabeth Street, Eaton Sq. S.W.
December 17th.

ANTI-DISTEMPER VACCINATION AND MR. SEWELL.

Sir,

In your last issue Mr. Sewell states that I wrote as an injured person. No doubt he judges of my feelings by his own: but I can assure him I am not aggrieved, but glad—seeing good is likely to come out of his adverse criticisms, especially as he now supports the suggestion I have made several times in this Journal, and promises £10 towards a fund for the carrying out of an investigation on the action of Dr. Phisalix' Vaccine. I will assist him in his desire to further my suggestions by offering another £10 providing, of course, Dr. Phisalix consents to come over and superintend the experiments himself. Mr. Hunting is willing to subscribe equally, and I know of others who will do likewise.

There is one point in justice to Mr. Sewell I ought not to omit and that is, that during the time the experiments were being carried out in September he was out of town on his holiday, and therefore could know but little, if anything, of the *real facts*. Perhaps he would now kindly state what the Aberdeen terrier was doing, on one of my visits, in the stall next to the loose box containing the experimental puppies? I only mention these facts as *The Illustrated Kennel News*, in which Mr. Sewell is largely interested, infers that Mr. Sewell's investigations on this matter were *exhaustive*, *laborious*, and *scientific*, and that he kept *a most careful record*.

He asks in paragraph 2 page 376 of *The Veterinary Record* which is the correct version of the different statements of mine on the action of the vaccine? My answer is that in the original they are consistent and do not vary beyond the statement on second line of the last paragraph, column 1 of page 365, which should read 18 or 24 *hours* instead of days. I am obliged to Mr. Sewell for pointing out this error.

He has, he tells us, no faith whatever in dogs having *real distemper* twice, what does he mean by *real*? Distemper is distemper, and not contagious pneumonia. I am afraid if all dogs that have had distemper were exposed in a distemper ward like his dog, some of them would be in a queer street. He knows as well as I do that dogs may, and do sometimes, and not infrequently, contract distemper a second time, for he says in one place:—"I have many times kept dogs that I know have had the disease in a kennel full of distemper patients and with the exception of two or three of them developing a husky cough, no other signs of the disease have occurred." What was this husky cough?

In case No. 5 of my inoculations (probably one of the four small puppies two of which had a discharge from the eyes and nostrils) Mr. Sewell mentions the temperatures, which seem very curious, especially as they were generally much higher than his idea of the normal temperature, viz., 101.5 during the interval, and after the inoculations, whereas after the signs of disease had manifested themselves following the contact with a diseased dog they were normal, and yet this dog died!

In another place when speaking of distemper he says "Besides, by knowing the exact temperature, one knows whether he has a mild or a severe case to contend with." My experience of the use of the thermometer on the dog in distemper is that it is useless in forming a prognosis, or even as a guide to treatment.

I may add for the further information of Mr. Sewell that since September I have inoculated many puppies, all of which have resisted distemper after having come in contact with affected dogs.

I have seen distemper conveyed to puppies by means of injecting the 3rd vaccine only. Even with this the puppies after showing cutaneous eruptions, running from the eyes, and some of them having *fits*, and ulcerated corneæ, did not die when kept with distempered dogs, but I took care not to let them come in contact with a case of broncho-pneumonia!

I mention this test with the 3rd vaccine as evidence that the *Pasteurella canis* of Lignières and Phisalix is the microbe of distemper, and in this direction Nocard and others support Lignières and Phisalix.

I have also tried the 3rd vaccine on dogs that have been known to have had the disease at some former date, and in no case was there reaction or illness.

It might interest Mr. Sewell to know that Professor Nocard and other pathological bacteriologists have isolated the *Pasteurella canis* from the blood of dogs affected with the so-called "New Dog Disease" or "Canine Typhus" and that it is not likely to have been brought over from China!

Kensington. HENRY GRAY, M.R.C.V.S.

ACTION AGAINST A M.R.C.V.S. (Roaring).

Sir,

Mr. J. K. Calderwood's letter in your last week's issue does him credit, and personally I am thankful to him. The risks that veterinary surgeons run in examining horses for soundness are appalling enough in the ordinary course of things without their opinions being called in question a month after being given. The rôle of a prophet is not for a veterinary surgeon to assume—An opinion given at the time should suffice.

As regards the evidence of Mr. Pollock who tested the horse in *several* ways, from a scientific point of view it was worth absolutely nothing. "It is, because it is" is argument good enough. "I could a tale unfold" in this connection but I'll let it pass.

I have no fault to find with Mr. Shipley. I should say he gave an honest opinion and one for which I have no doubt he could give a scientific reason. Prior to the proceedings, throughout them, and after them he treated me as a professional brother.

I should like here to publicly thank the National Veterinary Defence Association for the service indirectly rendered me by taking up the case for Mr. Howes. I hope some day to be able to repay them in some measure.

Yours faithfully, G. MAYALL.

COMMUNICATIONS, BOOKS, AND PAPERS RECEIVED.—Messrs. G. W. Chater, G. Mayall, G. A. Morgan, F. W. Garnett, R. A. Stock, J. Taylor, F. B. Eve, A. J. Sewell, F. Spencer, H. Gray, J. McKenny. Col. Nunn.

Live Stock Journal Almanac, *The Sussex Daily News*, *The Evening Times* (Glasgow).